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ABSTRACT

Summarized were eight studies comparing aspects of sentence comprehension skills in normal and learning disabled (LD) children. Questions such as the following were posed: Does the transformation of kernel sentences to passive negative questions affect sentence comprehension? Does the amount of feedback affect the level of sentence comprehension? Do visual phrasing cues affect comprehension of simple or complex sentences? Analysis of results suggested conclusions such as the following: Normal children score higher in sentence comprehension regardless of the type of reading task than do LD children. The rate of learning over the first trials is higher for normals than LD children, though the learning rate of LD children may continue to increase over trials after the normals' learning rate has levelled off. Passive negative questions are as easy to comprehend as kernel sentences for both LD and normal children. Visual phrasing cues do not affect sentence comprehension. (Author/DB)

Symposium: Teaching Selected Reading Skills to Learning Disabled Children

Prototypes for Teaching Sentence Comprehension Skills to Learning Disabled Children[1]

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Prototypes for Teaching Sentence Comprehension Skills to Learning Disabled Children

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The purpose of this presentation is to summarize eight studies directed at increasing reading comprehension in learning disabled children. These investigations focused on the variables related to sentence comprehension. Data were sought relative to the following questions:

1. Does the transformation of kernel sentences to passive negative questions affect sentence comprehension?
2. Is sentence sequencing and sentence comprehension affected by the directionality of print of the sentence?
3. Does the type of test used affect the sentence comprehension?
4. Does the within-sentence order of phrases affect sentence comprehension?
5. Does the amount of feedback affect the level of sentence comprehension?
6. Do visual phrasing cues affect comprehension in complex sentences?
7. Do visual phrasing cues affect comprehension in simple sentences?
8. Does the presence of chromatic or monochromatic visual phrasing cues affect sentence comprehension?
9. Does the presence of slash or dot phrasing cues affect sentence comprehension?

Subjects

The sample for each of these studies consisted of four groups of children identified as learning disabled and four groups of children identified as children utilizing basically normal modes of learning. Dr. Allen has presented the rationnale and the research design of all the studies. Dr. Jones has described the subjects in more detail. The results of the analyses of variance for the eight studies are presented in Table 1.

Instruments

The instruments utilized in these studies consisted of a printed presentation, emphasizing the variables being studied, and paper and pencil tests. Each instrument with its related test was presented over four trials to the learning disabled group and to the normal group of children assigned to that particular study.

Results

The results of the studies previously listed are presented below:

1. The effects of sentences presented in two differing forms: kernel and passive negative questions.

In this investigation five sentences were written as either kernel (The teacher is helping the girl) or passive negative questions (Is not the girl being helped by the teacher?) The children were then asked to write the sentence associated with a stimulus noun: Sentences were scored for meaning only.

Students responded similarily in sentence comprehension under both treatments. There were no significant treatment effects. Performance varied between the groups; the normal subjects exceeded the LD pupils. Both groups showed progress across trials. None of the interactions were significant. (These findings are in conflict with other work related to syntatic complexity.)

2. The effects of sentence presentations utilizing four directions of print: left to right, right to left, top to bottom, and bottom to top of the page.

This investigation utilized an instrument consisting of six sentences of low complexity and six sentences of high complexity presented in a certain sequence. In Treatment 1 the sentences' words were printed in the traditional, left to right, horizontal style. Treatment 2 consisted of sentences with the order of the words progressing from right to left. Treatment 3 presented the sentences with words vertically arranged from

the upper portion of the page downward in columnar form. The words were arranged from the bottom to the top of the page in columnar form in Treatment 4. Comprehension was measured utilizing twelve completion sentences, each dealing with the content of one of the sentences in the study list.

The treatments' main effect was non-significant. The direction of print did not significantly affect the groups' ability to comprehend sentence material. All treatments were similarly effective. Both groups showed progress over trials although the two groups differed significantly in their sentence comprehension with the normal subjects performing consistently higher.

3. The effects of the type of test question on measuring reading comprehension.

Here the independent variable was the explicitness of the information requested. The task consisted of eight sentences. After reading the sentences, the subjects in Treatment 1 received test items requesting facts. Treatment group two received test items requiring that inferences be made. The test items were arranged in a different order from the treatment sentences.

While the performance of the normal subjects was significantly superior to the performance of the LD subjects, there was no significant difference between performance on the different tests. The Groups X Treatments interaction was also not significant.

4. The effects of the position of noun clauses in sentence comprehension.

The task material consisted of eight sentences. Treatment 1 sentences were composed with the within-sentence order of descriptive clause followed by a nonlike word. In Treatment 2, the sentences were reconstructed so that the two major components of the sentences would be reversed while not changing the sematic meaning of the sentences; namelike word followed by descriptive clause. In the test questions the subjects were requested to fill in the

namelike word which was omitted from the sentences. The order of the sentences varied over the four test lists.

There was no significant Groups X Trials interaction. The normal subjects performed significantly higher than the LD subjects. The treatments had similar effects. Although progress was made across trials, the progress was not similar for the two groups; the normal subjects made more rapid gains than the LD subjects.

5. The effect of feedback on the comprehension of sentence meaning.

This instrument contained eight sentences cued by a prompt, the subject noun: eg. boys. Those tall restless boys have played ball in the yard. Four study lists were presented with the sentences presented in different orders on each. Following each study list, the subjects were given recitation by presenting the stimulus part of the sentence in written form on a sheet of paper. The subjects then produced the missing response part of the sentence orally. They then were given feedback. Treatment 1 received response feedback only while Treatment 2 received stimulus plus response feedback.

The Groups X Treatments interaction was not significant. The treatments had a similar effect over all trials and both LD and normal groups increased in comprehension over trials. The groups responded differently over trials. The normal subjects showed slow but constant progress over trials while the LD subjects were variable across trials. Thus, feedback with the response alone was as effective as feedback consisting of both the stimulus and response. (These results are in variance with other research in this area.)

6. The effects of visual phrasing cues on reading comprehension in complex sentences.

This instrument consisted of twelve complex sentences. Six of these

sentences were whole and six were divided into phrases. Slashes or dots were used to separate the different phrases. Treatment 1 presented the list of six whole complex sentences and six complex sentences in which the phrases were divided with a cue dot. In Treatment 2, six uncued complex sentences were presented randomly interplaced with six complex sentences which were broken into phrases and cued with a slash. Comprehension was tested by requesting the subjects to fill in the missing words from an alphabetical list containing the necessary words and twenty-four foils.

The Groups X Treatments interaction produced no significant differences. All groups increased comprehension across trials at different rates. The normal population increased comprehension more rapidly over the first trials then tended to level off while the LD population continued to increase in comprehension at about the same rate over the four trials.

7. The effects of visual phrasing cues on the comprehension of simple sentences.

In this investigation twelve simple sentences were presented to the children. The phrases in six of the sentences were spaced and separated with visual cues. The other six sentences were whole and left without cues. Upon completion of reading the sentences, the subjects were given a test consisting of these same twelve sentences presented in random order with critical nouns, verbs, or adjectives missing. The task was to fill in these blank spaces from among the word list at the top of the page containing the correct answers alphabetically arranged with twenty-six foils.

There was no significant Groups X Treatments interaction. The normal subjects performed significantly higher than did the LD subjects. All groups made progress over trials although their learning curves were different; the normal subjects' rate of learning increased more rapidly over early trials then leveled off and the LD subjects' learning rates began more slowly but accelerated over trials.

8. The effects of chromatic and monochromatic slash and dot visual phrasing cues on sentence comprehension.

This instrument consisted of twenty-four sentences of varying lengths and complexity. Twelve of the sentences were spaced into phrases and twelve of the sentences were presented as whole unbroken sentences. Treatment 1 consisted of black slash marks placed in the sentences as phrasing cues. Treatment 2 utilized black dots spearating the phrases in the sentences. Treatment 3 consisted of red slash marks used as phrasing cues in the sentences and Treatment 4 utilized red dots to separate the phrases within the sentences. After reading the sentences, the children were asked to demonstrate their sentence comprehension by filling in the blanks from the list of correct answers and foils alphabetically arranged at the top of the test page.

There were no significant differences in the Groups X Treatments interaction. All groups increased in sentence comprehension across trials although the groups responded differently. The normal groups increased in comprehension over three trials then leveled off while the LD population continued to increase over all trials. (The children verbally expressed preference for the red cues.)

Discussion

Analysis of the results from the preceeding eight studies suggests the following conclusions:

1. Normal children score higher in sentence comprehension regardless of the type of reading task than do LD children.
2. The rate of learning over the first trials is higher for normals than learning disabled children.
3. The learning rate for LD children may continue to increase over trials while the learning rate for normals may level off after several trials on certain kinds of tasks.
4. Directionality of sentence print does not significantly affect ability to comprehend sentence materials.

5. Passive negative questions are as easy to comprehend as kernel sentences for both LD and normal children.

6. Simple response feedback is as effective in increasing sentence comprehension as more complete feedback consisting of both stimulus response.

7. LD children will perform equally well on completion tests, fact and completion tests, and inference type tests.

8. The within-sentence placement of words or phrases did not significantly affect sentence comprehension.

9. Visual phrasing cues do not affect sentence comprehension.

TABLE 1

SUMMARY OF ANOVA RESULTS FOR TEACHING SENTENCE COMPREHENSION SKILLS TO LEARNING DISABLED CHILDREN

Investigator	Variable	G	TR	GxTr	Tl	GxTl	TrxTl	GxTrxTl
Allen	Sentence Transformation	S	NS	NS	S	NS	NS	NS
McDorman	Sentence Directionality	S	NS	--	--	--	--	--
Allen	Question Types	S	NS	NS	--	--	--	--
Allen	Within sentence Order	S	NS	NS	S	S	NS	NS
Allen	Feedback	S	NS	NS	S	S	NS	NS
McBride	Phrasing Cues: Complex Sentences	S	NS	NS	S	S	NS	NS
McBride	Phrasing Cues: Simple Sentences	S	NS	NS	S	S	NS	NS
McBride	Types of Phrasing Cues	S	NS	NS	S	S	NS	S